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basic imagery interpretation report

Kapustin Yar Cruise Test Complex D, Site 1 (S)

MISSILE RANGES: STRATEGIC SSM SPACE FACILITIES

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INSTALLATION OR ACTIVITY NAME					COUNTRY
Kapustin Yar Cruise Test Complex D, Site 1					UR
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MAP REFERENCE

USATC. Series 200, Sheet 0235-22, scale 1:200,000 (UNCLASSIFIED)

LATEST IMAGERY USED	NEGATION DATE (If required)
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ABSTRACT

1. (S/WN) Kapustin Yar Cruise Test Complex D, Site 1, referred to in this report as Complex D, is a major Soviet facility supporting the development and testing of ground-launched, air-breathing cruise vehicles. This includes vehicles with reconnaissance, target, and probable land-attack missions. This report discusses all construction activity observed at Complex D and all cruise vehicle programs related to this facility.

2. (S/WN) This is the first NPIC basic report on Complex D and it satisfies the basic reporting requirement for that installation. A location map, 44 annotated photographs, two conceptual drawings, and three inset tables of mensural data are included in this report. The information cutoff date is 25X1
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INTRODUCTION

3. (S/WN) Kapustin Yar Cruise Test Complex D, Site 1, (Figure 1) is in the southwestern USSR approximately 140 kilometers (km) southeast of Volgograd and 19 km north of Akhtubinsk Flight Test Center 25X1

4. (S/WN) Complex D is a component of the Vladimirovka Advanced Weapons and Research Complex (VAWARC) and is a major test and development center for ground-launched cruise vehicles. This facility also serves as the major target drone launch facility supporting air-to-air missile (AAM) testing at the VAWARC. Cruise vehicle/drone programs that have been associated with Complex D include probable large surface-launched aerodynamic missiles,[1] the DR-1 (LA-17) target and reconnaissance drones, the DR-2 (Luggage) long-range reconnaissance drone, the DR-3 (ADV-1) battlefield reconnaissance drone, the ADV-2 probable long-range reconnaissance drone, the ADV-4 probable battlefield reconnaissance drone, and a probable long-range, ground-launched cruise missile (GLCM).

5. (S/WN) Support for the cruise vehicle development programs at Complex D is primarily provided by three installations: Akhtubinsk FTC, Ramenskoye FTC , and Kapustin Yar Complex D SSM Support Facility 25X1
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BASIC DESCRIPTION

6. (S/WN) Complex D (Figure 2) is a rectangular, triple-fence-secured facility with dimensions of approximately 3,500 by 650 meters. The long axis of the Complex is oriented north/south. Complex D consists of four areas: Site 1 (the southernmost area), Site 2, Site 3, and Site 4 (the northernmost area). When first identified in September 1957, only Site 1 and Site 2 were under construction (Figure 3). By December 1959, construction was well underway at Sites 3 and 4. (A detailed construction history for each site is presented in paragraphs seven through 20.)

Construction History

Site 1

7. (S/WN) Site 1 (Figure 4) was probably initially constructed to support a large, surface-launched aerodynamic missile program. Most of the permanent structures had been completed by September 1957. These included the main concrete launch pad, the rail-served launch structure and an associated rail-mounted tower crane, the launch control bunker (item 5), a small personnel bunker (item 6), three support buildings (items 2, 3, and 8), a probable pumphouse (item 9), a partially buried water/POL storage tank, and a large catch basin. In addition, Kapustin Yar Complex D SSM Support facility, which is connected by rail to Site 1, was under construction at this time.

8. (S/WN) Between September 1957 and December 1959, the Site 1 launch pad was being expanded to accommodate a fixed erector/launcher device and launch rail probably used by another large, surface-launched aerodynamic missile. Other additions to Site 1 included an operations support building (item 1), a probable tracking support building (item 10), two general support buildings (items 4 and 7), four optical trackin-

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g/recording positions, and a second partially underground water/POL tank.

9. (S/WN) By February 1962, a large concrete support apron and loop road had been added to the Site 1 launch pad. A large light tower was erected in the middle of the support apron. A drive-down entrance extending under the apron is on the northwest side of the apron. In addition, this apron is flanked by two tall lightning arresters.

10. (S/WN) By April 1965, some of the structures built to support the probable large, surface-launched aerodynamic missile programs had been dismantled. Both the fixed erector/launcher and the large traveling tower crane which support the rail-served launch structure had been removed.

11. (S/WN) Only a few changes to the facilities at Site 1 have been noted since 1965. These included the dismantlement of the entrance to the personnel bunker (item 6), the removal of a part of the pumphouse roof (item 9), and the addition of several optical tracking/recording positions.

Site 2

12. (S/WN) Site 2 (Figure 5) was initially identified under construction in September 1957. All major construction in this area had been halted by December 1959 with the site still largely incomplete. The cruise vehicle which Site 2 was intended to support has never been identified. It is likely that this program was cancelled prior to the start of its flight testing which led to the cessation of construction at Site 2. Since 1959, Site 2 has primarily served as a storage/support area for Sites 1 and 3. Structures completed in this area include two small, irregularly shaped concrete pads, a large control bunker (item 3), a small control bunker (item 4, dismantled in 1976), a large storage/parking apron, and two support buildings (items 1 and 2). The base of a partially underground water/POL tank was in place by December 1959; however, this tank was never completed.

Site 3

13. (S/WN) The construction of Site 3 (Figure 6) began after September 1957. By December 1959, most of the major facilities in this area were either complete or under construction and testing had already begun on the DR-2. The completed facilities included the main concrete launch pad and loop road, a small partially underground control building, a large U-shaped revetment with a central support building, several general support buildings (items 4, 5, and 8), and five probable optical tracking/recording positions. In addition, a large, drive-through checkout building (item 1) and a large operations/administration building (item 2) were in the midstages of construction.

14. (S/WN) By April 1962, both the checkout building and the large operations/administration

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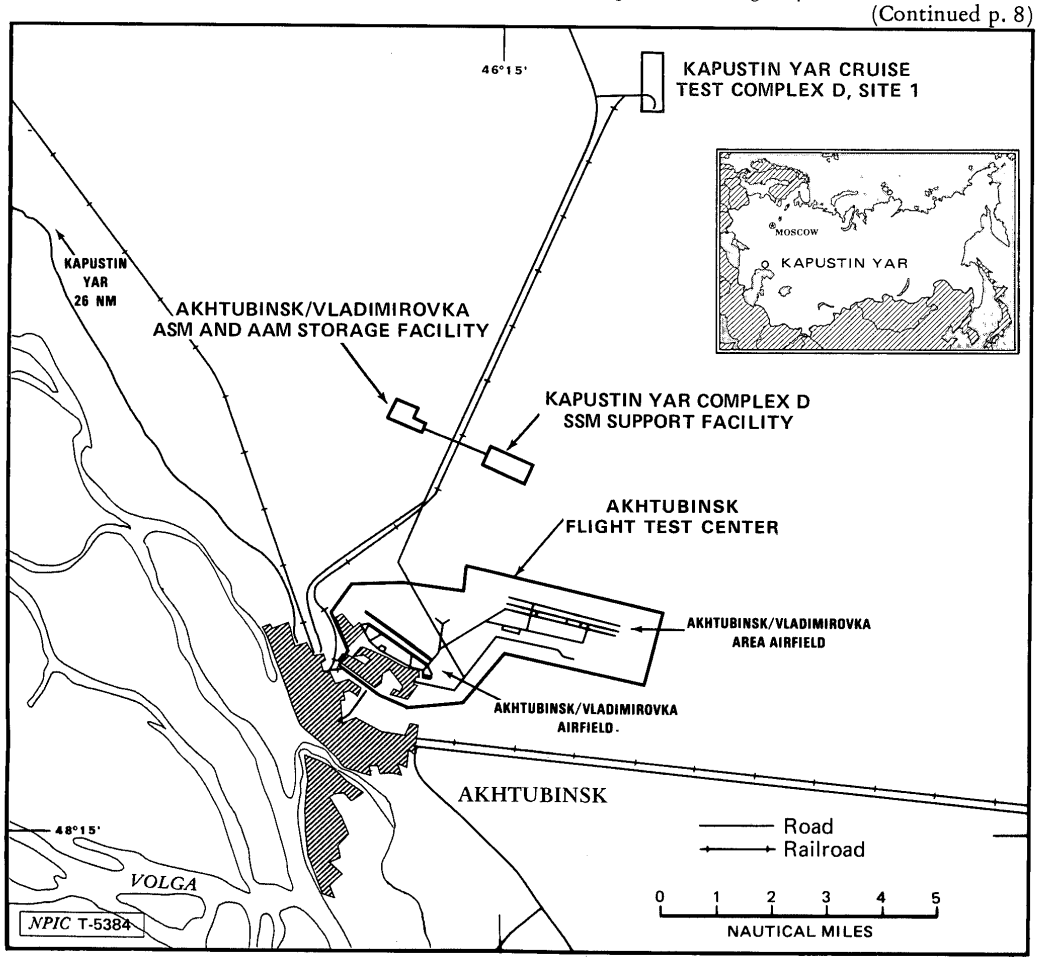


FIGURE 1. LOCATION OF KAPUSTIN YAR CRUISE TEST COMPLEX D, SITE 1, USSR

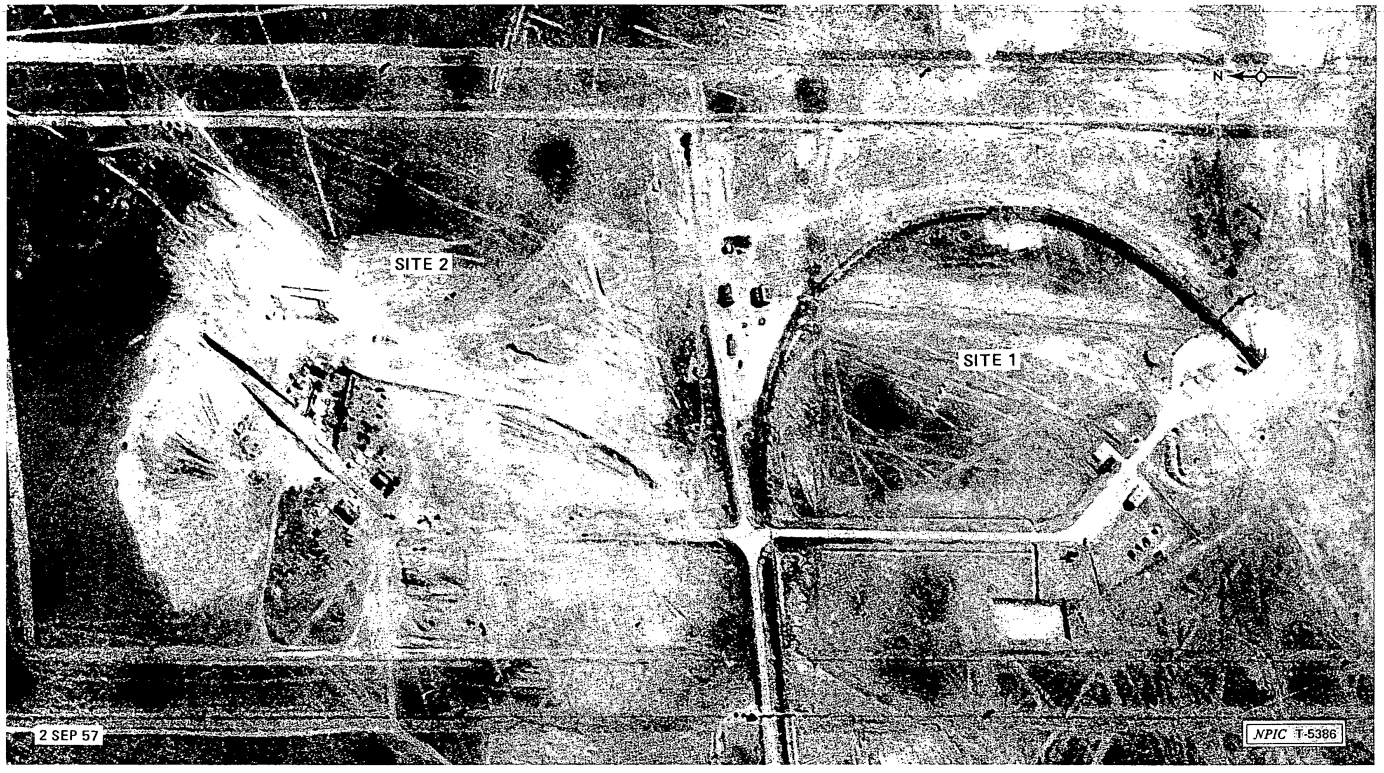
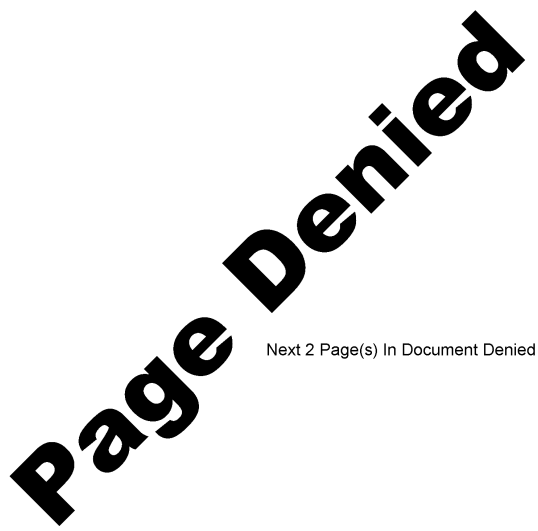


FIGURE 3. KAPUSTIN YAR CRUISE TEST COMPLEX D, SEPTEMBER 1957



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building had been completed. A heating plant (item 3) was also constructed. The previously identified small control building was also removed.

15. (S/WN) Since April 1962, construction activity at Site 3 has mainly been limited to small structures built to support specific cruise vehicle programs. A small concrete launch ring had been completed by June 1964. This construction has been used as a launch position for the DR-2, the DR-3, the ADV-2, and the ADV-4. A large control building (item 9), replacing the original small control building, was identified in April 1971. A large checkout tent has been present at Site 3 since January 1973. This tent originally supported the early testing of the DR-3 and later supported the ADV-2 program. A small vehicle storage building (item 6) had also been completed by 1973. A Quonset-type storage/support building (item 7), started in September 1978, was completed during June 1979. A small checkout tent supporting the ADV-4 program was first observed in September 1979.

Site 4

16. (S/WN) Site 4 (Figures 7 and 8) was first identified under construction in December 1959. As Site 2, this area was never completed. However, Site 4 has been used for field-testing/training exercises of both the DR-2 and DR-3. In December 1959, grading for the launch pad was underway. A large excavation, probably for a control bunker, was immediately north of the launch area. One onsite support building and two general support buildings were also under construction.

17. (S/WN) By April 1962, the launch pad had been partially finished with concrete and the previously identified onsite support building and general support buildings had been completed. An additional support building had also been constructed.

18. (S/WN) A probable optical tracking/recording position had been added to Site 4 by April 1965 (Figure 7).

19. (S/WN) Between April 1965 and April 1971, several significant changes to Site 4 were identified. The onsite support building was dismantled/destroyed (Figure 8) and all the other general support buildings were razed. A graded-earth launch ring, similar to the concrete launch ring at Site 3, was added northeast of the incomplete Site 1 launch pad. This ring was later finished with concrete.

20. (S/WN) A second graded-earth launch ring was identified approximately 800 meters north of Site 4 in August 1973.

Cruise Vehicle Test Programs

21. (S/WN) This section of the report deals with the cruise vehicle systems that have been associated with Complex D. Each system will be discussed separately and will include the following: a description of equipment associated with the system, a general summary of the test program, and a detailed analysis of the significant events observed during the test program.

Early Surface-to-Surface Cruise Missile Programs

22. (S/WN) The first test programs conducted at Complex D probably involved large surface-launched aerodynamic missiles with a land-attack mission. Although these missiles were never observed, it is possible that their design was influenced by two US surface-to-surface cruise missiles (SSCMs), the SNARK and the NAVAHO, which were under development in the 1950s.[2] The Soviet SSCMs were probably launched from two large devices observed at Site 1.

23. (S/WN) The first of these devices, probably completed in 1957, was the rail-served launch structure (Figure 9). The launcher is at the end of a railspur connecting Site 1 with the SSM support complex. This launcher is comprised of two major components, the erecting/launching mechanism and a large curved section. The erecting/launching mechanism is [redacted] 25X1 wide. This mechanism pivots, with the aft portion traveling along a single rail mounted atop the launcher's curved section. Two probable blast areas are behind the curved section. The location of the blast areas indicates that the erecting/launching mechanism was inclined at least 45 degrees for launches. The blast areas also indicate that the main launch orientations from this launcher were 90 degrees and 20 degrees. A large rail-mounted tower crane (Figure 10) was probably used to service the vehicle on the launcher.

24. (S/WN) The second device identified at Site 1, the fixed erector/launcher (Figure 10), was constructed between 1957 and 1959. An irregularly shaped probable erecting mechanism is situated at the western end of the fixed launcher. A 33-meter-long, probable, dual-launch rail extends eastward from the erecting mechanism. The probable launch orientation from the fixed erector/launcher was approximately 90 degrees.

25. (S/WN) The US SSCMs SNARK and NAVAHO proved to be heavy, inaccurate, and vulnerable to interception and were abandoned in favor of ICBMs. It is likely that similar problems were encountered with the Soviet SSCM programs, as none were ever deployed. By 1965, the rail-mounted tower crane which supported the rail-served launch structure had been removed. Also removed was the erecting mechanism for the fixed erector/launcher. No further activity relating to these launch devices has been identified.

Probable Target/Reconnaissance Drones

26. (S/WN) **DR-1.** The DR-1 (LA-17) is a straight-wing subsonic drone powered by a turbojet engine mounted under the fuselage. Designed in the early 1950s by the Lavochkin Experimental Design Bureau (OKB), the DR-1 has been used in both the target and reconnaissance roles.[3]

27. (S/WN) The DR-1 (Figure 11) is [redacted] 25X1 long with a [redacted] 25X1 fuselage diameter. The wing span of this vehicle is [redacted] 25X1 The ventral-mounted engine nacelle is 4 meters long with a [redacted] 25X1 diameter.

28. (S/WN) The DR-1 launcher (Figure 11) is a two-axle towed carriage. A small launch rail is mounted atop the carriage. The overall length of the launcher is [redacted] 25X1

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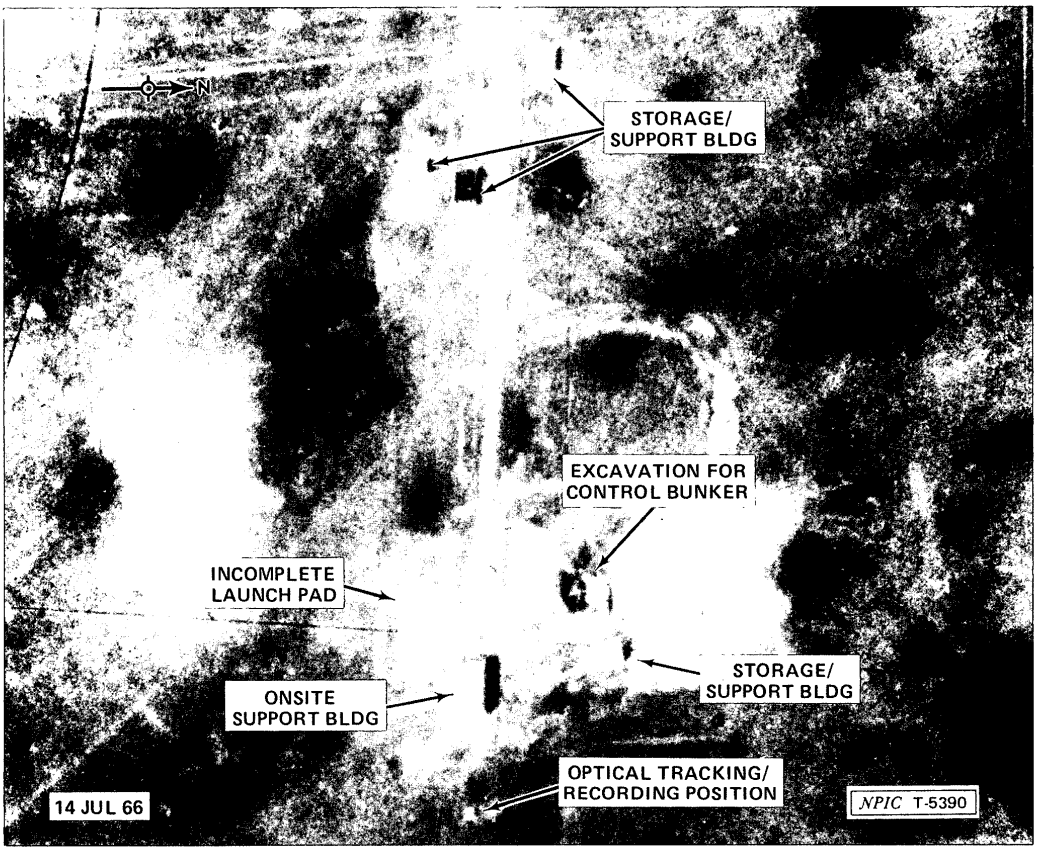

FIGURE 7. SITE 4, JULY 1966

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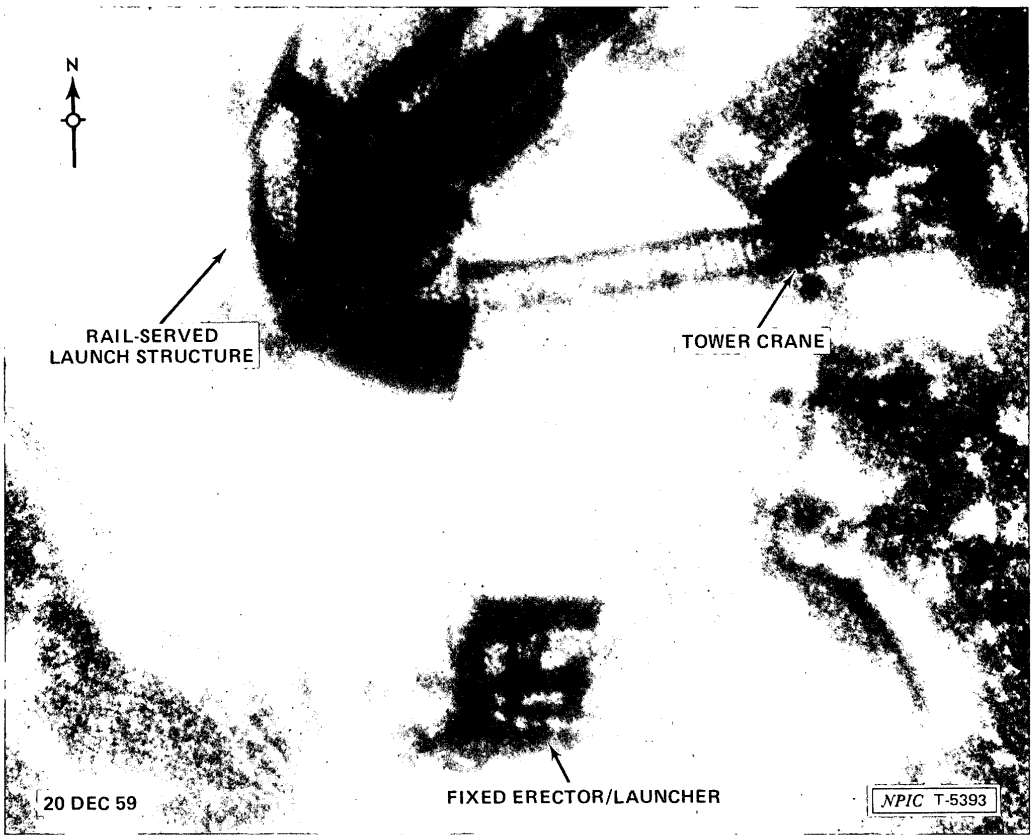


FIGURE 10. RAIL-MOUNTED TOWER CRANE AND FIXED ERECTOR/LAUNCHER, SITE 1

25X1

29. (S/WN) The ground-launched version of the DR-1 (LA-17) is assisted at launch by two strap-on boosters (Figure 12). These boosters are approximately [redacted] long with a diameter of [redacted] meter.

30. (S/WN) The DR-1 has been present at Complex D, Site 1, since at least April 1965. The number of deployed DR-1 launchers at Site 1 increased from two in the 1960s to as many as five by 1978. Since late 1980, four DR-1 launchers have normally been observed.

31. (S/WN) Akhtubinsk/Vladimirovka ASM and AAM Storage Facility [redacted] a component of Akhtubinsk FTC, has served as the main receiving/storage/checkout facility for the DR-1 since the 1960s. When required for launches, the DR-1s are shipped by road from the storage facility to Complex D (Figure 13).

32. (S/WN) The DR-1 has been used at the VAWARC primarily as a target for AAM testing. However, reconnaissance variants of this drone have probably also been flight tested at Complex D. Evidence of a probable DR-1 reconnaissance drone field-testing/training exercise was obtained in June 1978. On 7 June, two DR-1 launchers, one with a DR-1 (Figure 14), were deployed approximately 500 meters south of Site 1. Several support trucks, trailers, and tents were also observed. This equipment was not from Site 1, which still had five previously identified DR-1 launchers. All of the field-deployed equipment had been removed by 4 July. This field deployment of the DR-1 may have been related to a similar DR-2 deployment and a possible DR-3 deployment which occurred in the VAWARC area during the summer of 1978.

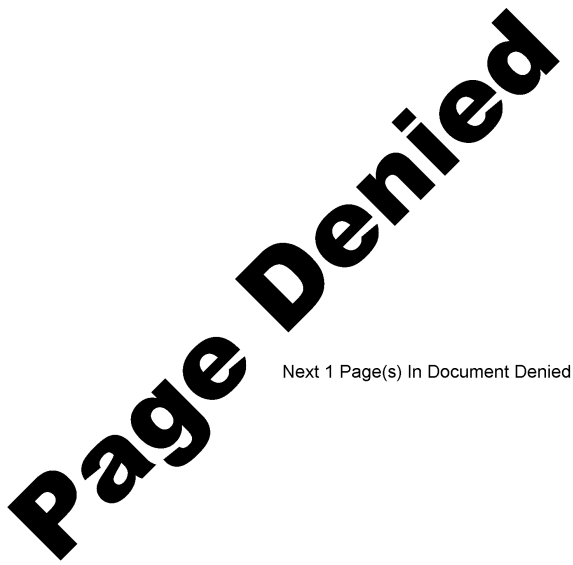
33. (S/WN) **DR-2.** The DR-2 (Luggage; RAM-A) is a large, delta-wing, turbojet-powered reconnaissance drone associated with the Tupolev OKB. This vehicle is designed for high-altitude, supersonic flight with a maximum range of over 3,000 km.[4] 25X1

34. (S/WN) The DR-2 (Figure 15) has a 26-meter fuselage with a maximum diameter of [redacted] meters. The forward end of the fuselage tapers to a point. The large delta wings are mid-mounted on the fuselage and have a span of 8 meters. Large, triangular, horizontal stabilizers, with a span of [redacted] meters, are at the rear of the fuselage and a single vertical stabilizer is mounted atop the aft fuselage section. 25X1 25X1 25X1

35. (S/WN) The original flight testing of the DR-2 involved the use of a probable fixed inclined launcher at Site 3 (Figure 16). This launcher was approximately 21 by 2 meters. The launcher was approximately [redacted] high at the aft end and [redacted] high at the forward end. Launches conducted from this device had a heading of approximately 90 degrees. This launcher was only observed in December 1959. 25X1 25X1

36. (S/WN) Since at least 1964, the DR-2 has used a towed semitrailer transporter/launcher (Figure 15). This semitrailer is [redacted] meters. When set up in its firing position, the front end of the launcher is slightly raised while the aft end is at ground level. 25X1

[redacted] 25X1



37. (S/WN) A large, chamfer-roofed van trailer probably serves as the main checkout vehicle for the DR-2. This checkout van trailer (Figure 15) is [redacted] Several fuel/oxidizer and cargo trucks also support DR-2 launch operations.

38. (S/WN) Flight testing of the DR-2 began between 1957 and 1959. In December 1959, the probable fixed inclined launcher was present, along with several support vehicles, at Site 3. Blast marks behind this device confirmed its use as a launcher. This fixed inclined launcher was probably used primarily for the initial aerodynamic and propulsion testing of the DR-2.

39. (S/WN) In June 1964, a DR-2 was first observed on the towed transporter/launcher. Launches were being conducted from the newly constructed launch ring at Site 3. In July 1966, two DR-2s were identified for the first time at Complex D (Figure 17). Testing of this system at Site 3 continued throughout the remainder of the 1960s. It was also during this time that DR-2-associated equipment was identified in the Tupolev area of Ramenskoye FTC, firmly linking that OKB with the DR-2 program.

40. (S/WN) The DR-2 had been deployed in limited numbers by the early 1970s and DR-2-related activity observed within the VAWARC area during this time was probably indicative of field-training exercises and not developmental testing. At Complex D, these exercises were conducted within Site 4 where two launch rings had been constructed by 1973 (Figure 18). Exercises within this area were detected in August and September 1973, February and March 1976, September 1976, and August 1978.

41. (S/WN) **DR-3.** The DR-3 (ADV-1) is a small, subsonic, low-altitude, battlefield reconnaissance drone developed by the Tupolev OKB. The DR-3 is propelled by a solid-propellant booster and a turbojet sustainer engine.[5]

42. (S/WN) The DR-3 (Figure 19) is 7 meters long with a maximum fuselage diameter of [redacted] meter. It has an aft-mounted, clipped delta wing with a span of [redacted] A single vertical stabilizer is mounted atop the aft section of the fuselage. The air intake for the turbojet sustainer engine is mounted atop the fuselage approximately [redacted] aft of the nose.

43. (S/WN) The original prototype launcher for the DR-3 (Figure 20), used prior to 1975, is a 16-meter-long flatbed trailer. The aft end of this launcher is [redacted] wide. A box-like structure is mounted atop the trailer approximately 6 meters aft of the launcher's front end. This structure is [redacted] meters long, [redacted] wide, and [redacted] high. The box-like structure probably simulated a portion of the launch canister seen on the operational DR-3 transporter-erector-launcher (TEL).

44. (S/WN) The DR-3 TEL (Figure 20), used to launch the DR-3 since 1975, is a variant of the ZIL-135 8x8 wheeled vehicle. The TEL has an overall length of [redacted] and a width of [redacted] Mounted on the back portion of the TEL is the launch canister which is 8 meters long and [redacted] meters in diameter. A large end cap covers each end of the canister. The front end of the canister is elevated approximately 20 degrees for launch purposes. A probable sliding tray/rail (Figure 21) is contained within the launch canister. 25X1

45. (S/WN) The DR-3 resupply vehicle (Figure 22) is also a variant of the ZIL-135. This vehicle is 13 meters long overall with a maximum width of 3 meters. The aft portion of the resupply vehicle is a 9-meter-long cargo area covered by ribbed canvas.[9]

46. (S/WN) The DR-3 is shipped in a unique container (Figure 22) which is [redacted] 25X1
Two distinct ribs/handling bands extend longitudinally atop the container.

47. (S/WN) Testing of the DR-3 probably began at Complex D during the early 1970s. These tests were accomplished using the prototype launcher which was first observed at Site 3 in January 1972. This launcher (Figure 23) was used until the DR-3 TEL became available in 1975. During this time period, DR-3-associated equipment was repeatedly observed in the Tupolev area of Ramenskoye FTC and at Akhtubinsk FTC. Testing of the DR-3 at Complex D was confined to Site 3 until August and September 1977. During this time, a large-scale field-testing/training exercise was conducted at Site 4 (Figures 24 and 25). The DR-3 was probably first deployed to operational units during 1977 or 1978. Testing of the DR-3 continued at Site 3 through April 1979. [redacted] revealed 25X1
an open TEL with a probable DR-3 (Figure 26). DR-3 testing was moved to Site 1 in June 1979 probably to make room for increased ADV-2 testing at Site 3. With an apparent standdown in ADV-2 activity, the DR-3 resumed testing at Site 3 in July 1982.

48. (S/WN) **ADV-2.** The ADV-2 is a large aerodynamic cruise vehicle which has been undergoing flight testing at Complex D since at least 1976.[6] This vehicle, which was probably designed by the Tupolev OKB, utilizes a probable solid rocket booster and a turbojet/turbofan sustainer engine.[7] The intended function of the ADV-2 has yet to be confirmed. The association of the ADV-2 with the Tupolev OKB, which developed the DR-2 and DR-3 systems, suggests a reconnaissance mission. However, the use of the ADV-2 in a land-attack role is also possible. 25X1 25X1

49. (S/WN) The ADV-2 is similar in appearance to the smaller DR-3. It is likely that the design of the ADV-2 was greatly influenced by the success of the earlier Tupolev reconnaissance drone. Three versions of the ADV-2 have been identified. The three vehicles differ from each other primarily in the design and location of the various control/lifting surfaces. All three variants, designated ADV-2a, ADV-2b, and ADV-2c (Figure 27), have a [redacted] meter fuselage with a [redacted] diameter. As the DR-3, all variants of the ADV-2 have a dorsal-mounted air intake on the aft portion of the fuselage. A single vertical stabilizer is mounted atop the rear of the vehicle. 25X1 25X1 25X1 25X1

50. (S/WN) The ADV-2a (Figure 28), first observed on [redacted] has aft-mounted, clipped delta wings with a span of [redacted] and a root chord of [redacted] Two sets of rounded foreplanes are on the forward section of the fuselage. 25X1 25X1 25X1 25X1

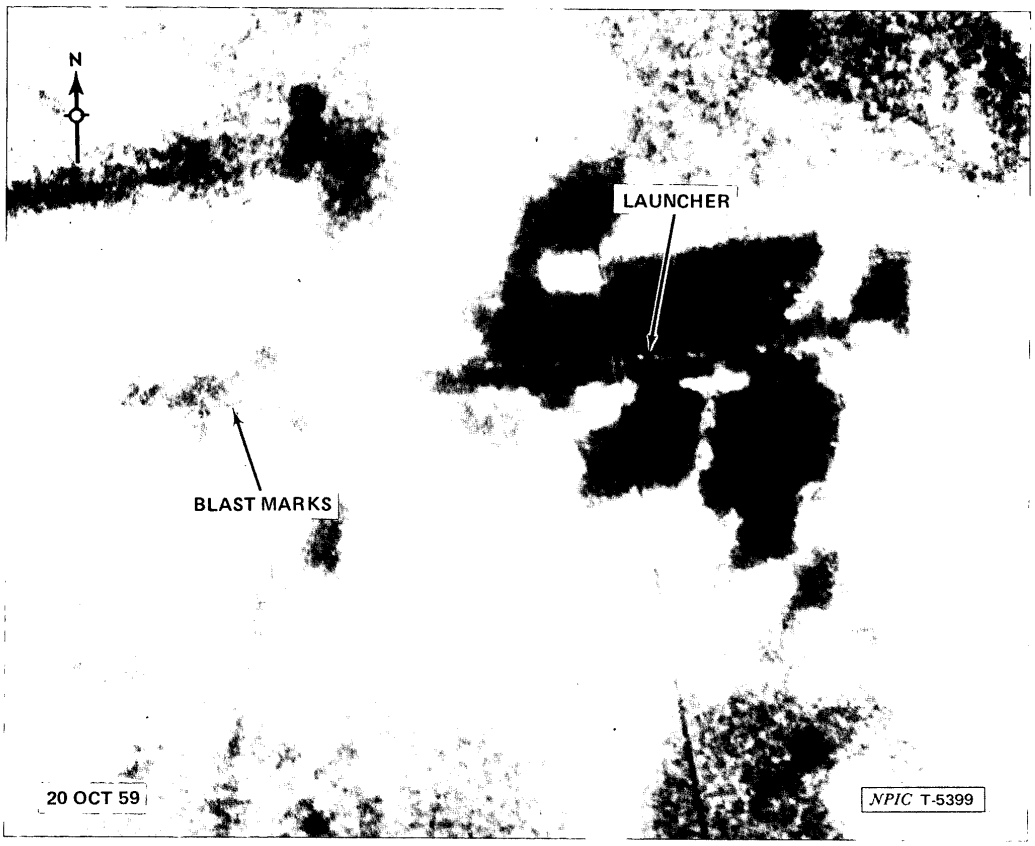


FIGURE 16. PROBABLE DR-2 FIXED INCLINED LAUNCHER, SITE 3

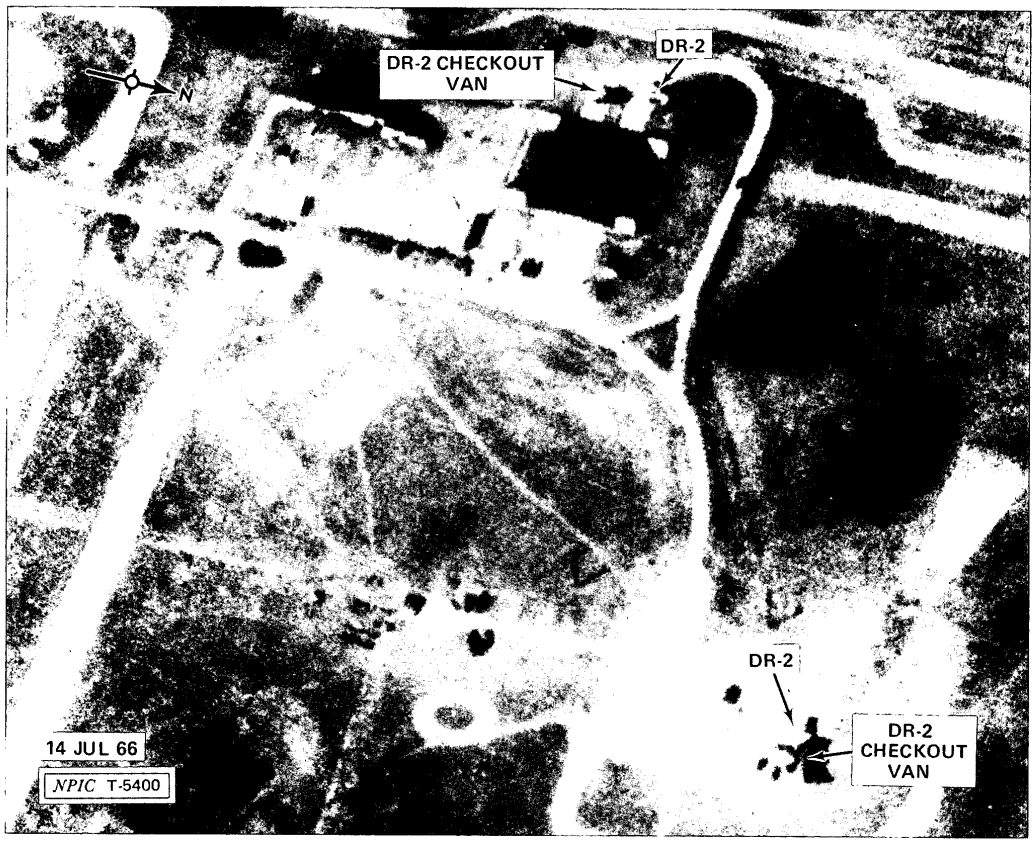


FIGURE 17. DR-2 ACTIVITY, SITE 3, JULY 1966

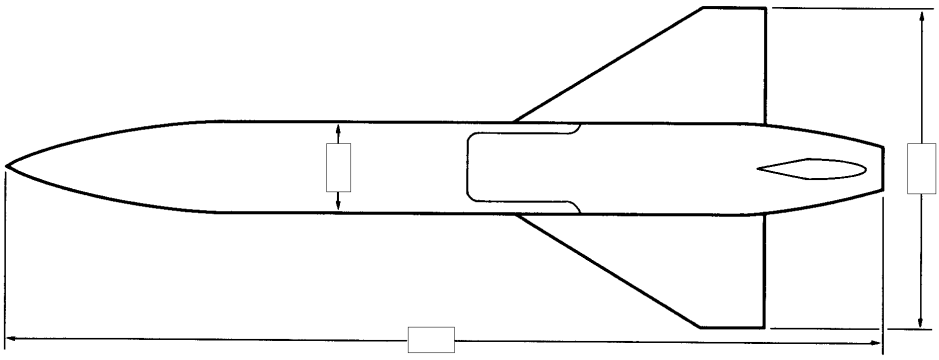


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FIGURE 19. DR-3

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51. (S/WN) The ADV-2b (Figure 28), first observed on [redacted] has clipped delta wings with a span of [redacted] and a chord of [redacted] meters. A single set of clipped foreplanes is mounted forward on the fuselage.

52. (S/WN) The ADV-2c (Figure 29), first identified on [redacted] also has a single set of foreplanes similar to those on the ADV-2b. The wings of the ADV-2c, however, are of simple delta design (not clipped) with a span of [redacted] a chord of [redacted]

53. (S/WN) The ADV-2 prototype launcher (Figure 30), of which two have been identified, is a [redacted] double-axle towed trailer. A raised cradle used to support the ADV-2, is centerline mounted on the trailer and is [redacted] The prototype launchers are towed from the forward end.

54. (S/WN) The new-type ADV-2 launcher (Figure 31) is also a towed trailer but is towed from the aft end. The new-type launcher is equipped with a hinged platform which supports the forward section of the ADV-2. When this platform is lowered, the launcher is [redacted] long. When raised, the launcher is [redacted]s long. The launch cradle on the new-type launcher is recessed and is [redacted] long. Two of the new-type ADV-2 launchers have been observed to date.

55. (S/WN) The ADV-2 transporter (Figure 32) is also a towed [redacted] long, double-axle trailer which is normally canvas covered. The canvas is draped over a light framework which gives this vehicle a ribbed appearance.

56. (S/WN) The ADV-2 checkout van trailer (Figure 28) is a [redacted] long, chamfer-roofed vehicle. Eight vents, four along each side of the chamfered roof, and two box-like protrusions have been identified on the van body. This van trailer is probably used for electronics/guidance system checkout of the ADV-2. 25X1 25X1

57. (S/WN) All of the ADV-2-associated towed trailers have been observed attached to KRAZ-214/255 or ZIL-131 prime movers. 25X1

58. (S/WN) The ADV-2 special-purpose vehicle set (Figure 33), first observed in June 1979, is comprised of two tracked vehicles and one van-bodied truck. The tracked vehicles are [redacted] meters. The van-bodied truck is a probable URAL-375 workshop. These vehicles are normally observed at the Site 3 launch pad when the ADV-2 is being prepared for flight (Figure 28). It is likely that the special-purpose vehicle set serves some checkout/calibration function for the ADV-2. 25X1 25X1 25X1

59. (S/WN) The ADV-2 booster (Figure 31) is a probable solid rocket motor used to assist the launch of the cruise vehicle. The identification of spent boosters downrange from Complex D (Figure 12) indicates that the booster is jettisoned immediately after launch. The ADV-2 booster is shipped in a rectangular container (Figure 31) which is [redacted] wide, and [redacted] meter high. 25X1 25X1 25X1

60. (S/WN) A [redacted] airframe (Figure 34) which has been observed mounted under the port wing of a BACKFIRE B may also be associated with the ADV-2 program.[8] An ADV-2 checkout van 225X1

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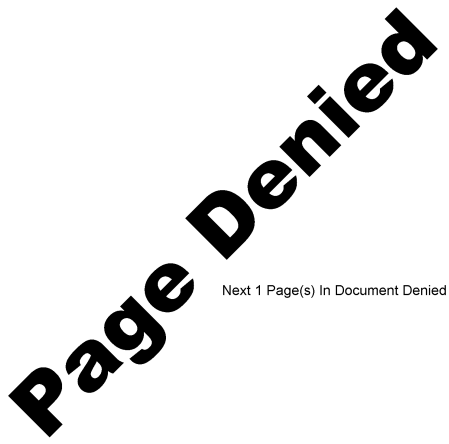
[redacted] 25X1



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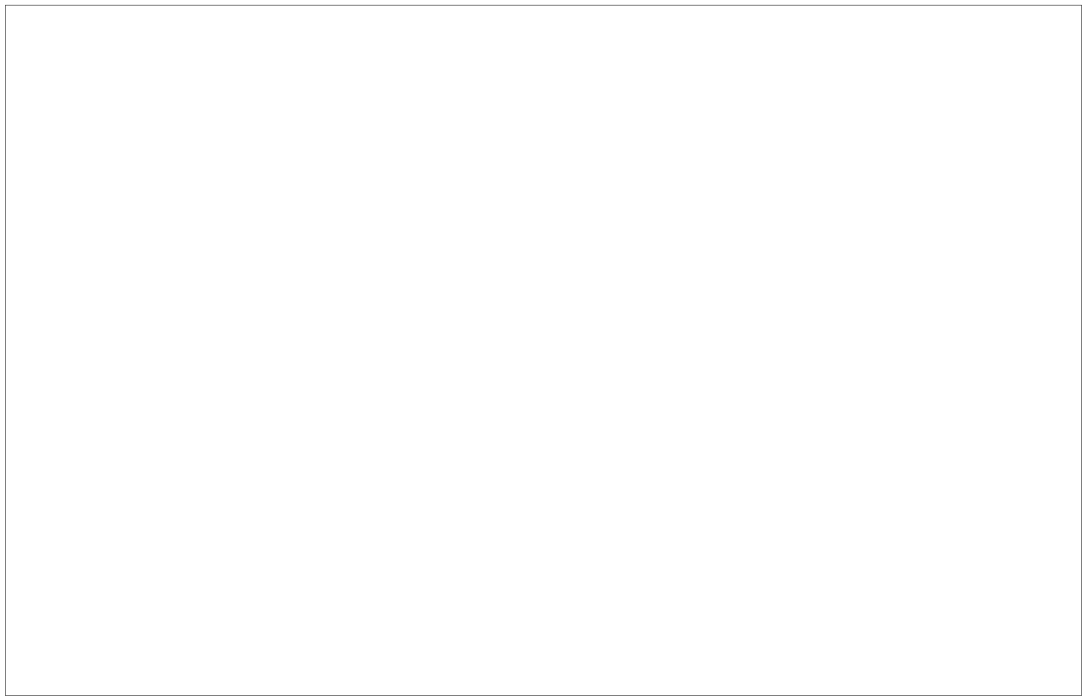

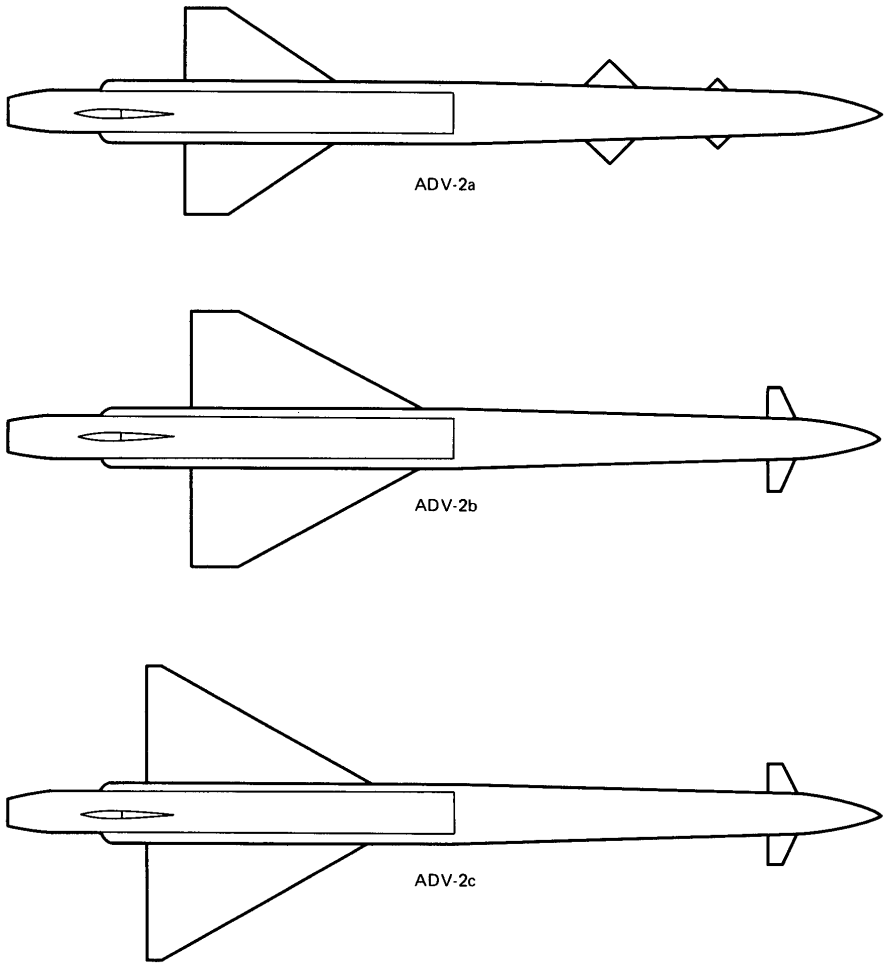

FIGURE 27. CONFIGURATIONS OF THE ADV-2

trailer was observed adjacent to the BACKFIRE-mounted airframe during May 1980 at Akhtubinsk FTC. The use of the ADV-2-associated van trailer suggests that the [redacted] airframe contains an electronics/guidance system similar to that of the ADV-2. No control/lifting surface has ever been observed on the airframe.

61. (S/WN) The development of the ADV-2 appears to have incorporated three phases of testing. The first phase was probably for basic aerodynamic, control, and propulsion evaluation. The second phase of testing produced aerodynamic changes to the ADV-2 and probably developed the ADV-2 electronics/guidance systems. The third phase was characterized by a significant increase in ADV-2 launch activity and may be a precursor to an operational deployment of this system.

62. (S/WN) ADV-2-associated equipment was first identified in the Tupolev area of Ramenskoye FTC during 1974. Testing of this system at Complex D had begun by 1975 where an ADV-2 transporter was observed in May. This first phase of testing involved the ADV-2a and the first prototype launcher, both of which were originally observed at Site 3 on [redacted] (Figure 20). This testing continued through at least April 1977. None of the support equipment tentatively associated with the ADV-2 electronics/guidance system was observed during this period. These initial tests were probably to evaluate the aerodynamic, control, and propulsion characteristics of the ADV-2.

63. (S/WN) The testing of the ADV-2 electronics/guidance system components probably began in 1978 and continued into 1981. During this period, several significant events, probably related to the electronics/guidance testing, were observed. In May 1978, an ADV-2 checkout van trailer and RSBN-4N short-range navigational aids (Figure 35) were deployed to Site 3. By December 1978, the second prototype launcher was at Complex D. ADV-2b testing from this launcher began in February 1979. Testing of the BACKFIRE-mounted [redacted] airframe began in May 1979 at Ramenskoye FTC. The ADV-2-associated special-purpose vehicle set was deployed to Complex D in June 1979. The [redacted] airframe and an ADV-2 checkout van trailer were observed at Akhtubinsk FTC during May 1980. Aerodynamic refinement of the ADV-2 led to the ADV-2c which began testing on the second prototype launcher in May 1980. In June 1980, an ADV-2, two ADV-2 checkout van trailers, and the [redacted] airframe were transferred from Complex D and Akhtubinsk FTC to Ramenskoye FTC. In December 1980, ADV-2c testing from the first new-type launcher began at Complex D (Figure 36). The identification of spent ADV-2 boosters downrange from Site 3 indicated that at least two, southeast-oriented launches had been conducted from the new-type launcher by June 1981. All previous ADV-2s had been launched in an easterly direction.

64. (S/WN) The third and possibly final predeployment phase of ADV-2 testing was conducted at Complex D from August 1981 through May 1982. At least 15 ADV-2c launches occurred during this period. All of these launches were conducted from the new-type ADV-2 launchers, the second of which arrived at Site 3 in April 1982. Three launch orientations were used for these tests: east, southeast, and south-southeast. No sightings of either the ADV-2 checkout van trailer at Complex D or the [redacted] airframe at Ramenskoye FTC were made during this time. It is likely that the guidance system and possibly a reconnaissance package for the ADV-2 had been fully developed by August 1981 and that subsequent testing was of the complete ADV-2 system. 25X1 25X1

65. (S/WN) No ADV-2 or ADV-2-associated launch activity has been observed at Complex D since May 1982. This apparent hiatus in launch activity was accompanied by the removal of ADV-2 equipment from Site 3 (Figure 37). During June and July, the missile checkout tent was dismantled. One of the new-type ADV-2 launchers and the associated special-purpose vehicle set were removed. All of the solid rocket booster shipping containers were also removed.

66. (S/WN) The significant decrease in ADV-2-associated activity and equipment at Complex D may indicate that the test program of this probable reconnaissance drone has been completed. If the Soviets intend to operationally deploy the ADV-2, field-training exercises, similar to those observed for the DR-2 and DR-3, may be conducted in the near future. 25X1

67. (S/WN) **ADV-4.** The ADV-4 is a small, TEL-launched cruise vehicle on which testing began at Complex D during 1978. This vehicle is probably intended to be used as a highly mobile, short-range battlefield reconnaissance drone.

68. (S/WN) The ADV-4 (Figure 38) is 3 meters long with a [redacted] fuselage diameter. The vehicle has a tapered straight wing with a span of [redacted] meters, a wing root chord of [redacted] and a wing-tip chord of [redacted] The horizontal stabilizer has a span of [redacted] A small vertical stabilizer is mounted atop the rear the fuselage. The configuration of the ADV-4 engine has not yet been identified on imagery. 25X1 25X1 25X1 25X1 25X1

69. (S/WN) The ADV-4 TEL (Figure 38) is a tracked vehicle similar in appearance to the M-1974 122mm self-propelled gun chassis. The chassis is [redacted] Mounted atop the chassis is a probable launch rail and erecting mechanism. The rail is mounted offset to the right. A unique chamfered cover has often been observed on the TEL (Figure 39). The cover, with an overall length of [redacted] meters, overhangs the rear of the chassis by approximately 2 meters. As many as two TELs have been observed at Complex D. 25X1 25X1 25X1 25X1

70. (S/WN) An ADV-4 TEL was first identified at Site 3 in May 1978. A small checkout tent which has been associated with the ADV-4 program had been erected by June. In April 1979, the second ADV-4 TEL was first identified at Site 3.

71. (S/WN) By April 1981, three sightings of the ADV-4 had been made at Site 3. Twice, on [redacted] and on [redacted] (Figure 40), this vehicle was observed on a TEL. On [redacted] a probable canvas-covered ADV-4 airframe was identified in the cargo bed of a ZIL-131 truck (Figure 41). 25X1 25X1 25X1

72. (S/WN) Testing of the ADV-4 continued until April 1981. From late April 1981 until March 1982, no ADV-4 launch-related activity was detected at Complex D. The reason for this 12-month

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halt in launch activity has not been determined. This may have been an evaluation period prior to the start of a new test phase. This hiatus could also have been necessitated by some problem that may have developed during the first three years of ADV-4 testing.

73. (S/WN) Testing of the ADV-4 resumed at Complex D during March 1982 and is expected to continue for some time. This testing will probably be required to fully develop the vehicle's propulsion, guidance, and possibly a reconnaissance payload before it is operationally deployed.

GLCM

74. (S/WN) In 1981, the Soviets began testing a probable, long-range, GLCM at Complex D.[9] Equipment at Site 1 indicates that the GLCM may be related to the SS-NX-21 long-range, sea-launched cruise missile (SLCM) currently being tested at Nenoksa Naval Missile Test Center (BE

75. (S/WN) The probable GLCM launch vehicle is a tracked TEL (Figure 42). Atop the TEL is a centerline-mounted launch tube (Figure 43) which is long and in diameter. To date, only one probable GLCM TEL has been identified.

76. (S/WN) The probable GLCM shipping container (Figure 42) is an meter-diameter cylinder. This container is identical in size and configuration to those associated with the SS-NX-21 SLCM.[10]

77. (S/WN) Several probable GLCM launch canisters have also been observed (Figure 44). The canisters are 8 meters long and in diameter and are normally observed inline with and downrange from the TEL. These canisters might be sealed capsules, each containing a cruise missile, which are inserted into the launch tube and ejected either during or just after launch. If so, the identification of new canisters downrange from the TEL would indicate a recent GLCM launch. However, this has never been confirmed and the exact function of the canisters still has not been determined.

78. (S/WN) The tracked TEL, minus the launch tube, was first observed with two adjacent probable GLCM shipping containers at the Site 1 support apron in October 1980. By the launch tube had been placed on the TEL and the entire assembly was moved to the launch pad. The TEL has also been cable connected to the Site 1 launch control facility.

79. (S/WN) During September and October 1981, preparations for the first probable GLCM launch were observed. By the launch tube had been removed from the TEL and two 8-meter-long cylindrical objects were by the Site 1 operations building. On a KRAZ-214 cargo truck was observed adjacent to the TEL. The launch tube had again been placed on the TEL and the two cylindrical objects were no longer present. On a probable launch canister was observed adjacent to the launch pad. This canister was not inline with the TEL and was probably not used for a GLCM launch. The KRAZ-214 and a support bus were also present on the launch pad. By both the KRAZ-214 and the support bus were gone and the TEL had been canvas covered. The canvas had been removed by 25X1

80. (S/WN) The first probable GLCM launch occurred between 25X1
On the TEL was canvas covered and a second probable launch canister was observed approximately 170 meters downrange. The second probable GLCM launch was probably conducted in early December and a third probable launch canister was subsequently observed approximately 210 meters downrange from the TEL. A Modified CANDID B with a long tail extension was observed at Akhtubinsk FTC on This aircraft, previously associated with the SS-NX-21 SLCM program,[11] probably supported the GLCM test activity observed in 1981.

81. (S/WN) A third probable GLCM launch occurred between Imagery of revealed a fourth probable GLCM launch canister approximately 160 meters downrange from the TEL. The first two launch canisters were not present and vehicle tracks in the Site 1 area indicated that they had been recovered by

82. (S/WN) The GLCM currently being developed at Complex D is most likely a variant of the SS-NX-21. Testing of the GLCM will probably continue for some time and the operational deployment of this system is not expected before late 1983 or 1984.

Helicopter Sightings

83. (S/WN) On three occassions since 1975, a helicopter has been observed on the large storage/parking apron at Site 2. The first two sightings were of new attack/assault helicopters which were probably undergoing weapons testing at the VAWARC. The third sighting was of a helicopter probably being used to support a cruise vehicle test at Complex D.

HIND D

84. (S/WN) A HIND D combat assault helicopter was at Site 2 on (Figure 45). The HIND D at the VAWARC was probably related to the helicopter's weapons test program. HIND D was first operationally deployed in 1976.[12]

HELIX B

85. (S/WN) A camouflage-painted HELIX B amphibious assault/fire support helicopter[13] was at Site 2 on (Figure 46). This helicopter was probably involved in some preliminary weapons testing at the VAWARC. To date, the HELIX B has not been operationally deployed.

HIP C

86. (S/WN) A HIP C probable range-support helicopter was at Site 2 on (Figure 47). Activity at Site 3 indicated that an ADV-2 test was in progress on that date. It is likely that the HIP C at Complex D on was used to support the ADV-2 test.

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REQUIREMENT

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Project 542060P

(S) Comments and queries regarding this report are welcome. They may be directed to [redacted] Warsaw Pact Forces Division, Imagery Exploitation Group, NPIC, [redacted] 25X1 25X1

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